



Cauvery River: Late Quaternary Fluvial Process and landforms

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The Cauvery river basin from Hogenakkal to Thiruchirapalli, Tamil nadu, lies between 10°16' N to 11°30' N latitude and longitude 78°45' E to 79°51' E as demarcated in the survey of Indian topographical maps and draining a total area about 27,700 square miles. In this study, remote sensing imageries supported by topomaps and photo geological maps in relation to the structural configuration of the Cauvery basin, geodynamics and sedimentology are presented. Previous studies revealed that Cauvery river had earlier flowed in east to west direction along the Hogenakkal transverse fault to Erode and also controlled by minor fault systems. Three major palaeochannel systems, all branching off Cauvery, such as Hogenakkal– Kaveri pattinam along the Stanley reservoir, Harur a tract of Ponnaiyar river and Dharmapuri- Tiruchirapalli plains, indicates that the Cauvery river is structurally controlled and has changed its courses in the past due to neotectonic movements. The major tributaries draining along the district of Dharmapuri and Thiruchirapalli regions are Ayyar and Uppar in the north and Koraiyar in the south. The geology of the drainage basin is predominantly formed sculpting the Precambrian rocks, principally the Dharwar, Peninsular granitic gneiss, Charnockites and the Closepet granite and in general, the drainage pattern is dendritic in nature. Geologically, the Cauvery River is influenced by a major structural depression in the southern part of the Dharwar dome granulite belt. However the drainage pattern is largely sub-parallel and parallel when the river is flowing over the Cretaceous sedimentary rocks of Thiruchirapalli. Cauvery river undergoing uplift is reveals bedrock channel weathering and erosion, narrow and incised valleys with the occurrence of over steepened lower reaches of the tributaries and hanging valleys. In the present study the tectonic controls on this river were evaluated on the basis of the longitudinal profiles, morphotectonic of active tectonics, and fluvial records. The occurrence of low channel gradients, prominent hanging valleys, narrow bedrock and rapid erosion in middle portion of the Cauvery river indicate strong bedrock channel erosion. Drainage density and length of overland flow positively correlated with each other and the relationships are significant at 85% level. In this presentation detailed morphometric analysis supported by field data are presented.